Excerpta Medica

The International Medical Abstracting Service

Excerpta Medica Foundation 119-123 Herengracht Amsterdam The Netherlands

Directors

J.CAUVERIEN

P.J.VINKEN

PETER A.WARREN

Board of Chief Editors
M.W.WOERDEMAN (Chairman)
Past President, Royal Netherlands
Academy of Sciences
M.FISHBEIN Emeritus Professor of
Medicine, University of Chicago and
University of Illinois
P.J.GAILLARD President, Royal
Netherlands Academy of Sciences
SIR PETER MEDAWAR Director,
National Institute for Medical Research,
Medical Research Council, London
Executive Chief Editors
A.J.DUNNING

A.J.DUNNING
G.P.M.HORSTEN
W.VAN WESTERING

Biophysics, Bioengineering and Medical Instrumentation

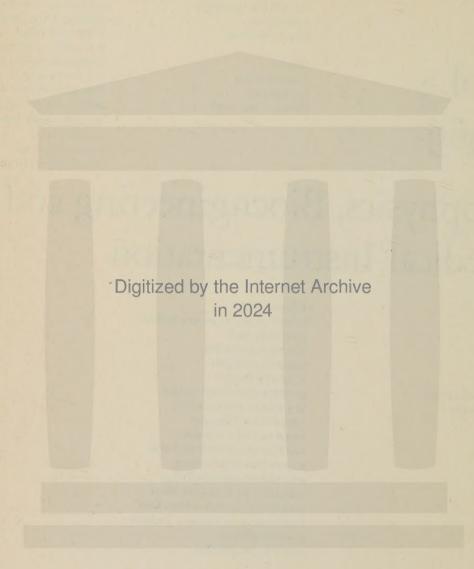
Section 27

Editors
G.P.M.HORSTEN
J.A.J.KLIJN

Vol.3

1969

Editorial Board WILLIAM M.CHARDACK Buffalo J.F.DAVIS Paris A.H. FRUCHT Berlin D.W.HILL London A. HRBEK Prague JACOB KLINE Coral Gables W. J. KOLFF Salt Lake City F.KREUZER Nijmegen BERNARD LOWN Boston D.W.LÜBBERS Marburg/Lahn ALOYS MÜLLER Freiburg MASAMITSU OSHIMA Tokyo B.RAJEWSKY Frankfort/Main HAROLD W. SHIPTON Iowa City E.LLEWELLYNTHOMAS Toronto G.WORTH Moers PAUL M. ZOLL Boston



1.	GENER	AL ASPECTS	1,35,69,103,141,169,201,239,293,349,397,451
	1.1.	History	-, -, -, -, -, -, 239, -, -, 397, -
	1.2. 1.3.	Components Standards	1,35,69,103,141,169,201,239,293,349,397,451 ,,,,142,169,201,,,,,452
2.		YSICS AND BIOENGINEERING	1,36,70,103,142,169,201,240,294,349,397,452
	2.1.	Fundamental concepts	4, 37, 70, 106, 143, 172, 203, 245, 298, 351, 402, 456
	2.2.	Mechanical systems	5, 37, 70, 109, 145, 174, 205, 248, 299, 355, 403, 458
	2.3. 2.4.	Heat and thermodynamics Bioacoustics	6, 40, 72, 111, 146, 174,,, 301, 356, 404, 460
	2.5.	Biooptics	6,41,72,111,146, ,205,250,302,356,404,460 6,43,73,113,146,174,207,251,303,357,405,462
	2.6.	Gas physics	6, 43, 73, 115, 147, 176, 208, 252,, 358, 406, 464
	2.7.	Fluid flow systems	7, 44, 73, 115, 147, 176, 208, 253, 304, 358, 406, 465
	2.8.	Electrical systems	8, 44, 73, 116, 147, 176, 208, 253, 306, 358, 407, 466
3.	2.9. GENER	Nuclear biophysics AL INSTRUMENTATION	10, 46, 75, 119, 149, 178, 209, 257, 307, 361, 410, 469 11, 48, 75, 120, 149, 178, 210, 257, 309, 364, 412, 470
	3.1.	Transducers	-, -, 76, 120,, 179, 210,,, 364, 412, 470
	3.2.	Amplifiers	12, 49, 76, 120, 150, 179, 210, 257, 310, 364, 413, 470
	3.3. 3.4.	Indicators Recorders	,50,77,,,180,,,310,365,414,470
	3.5.	Generators	12,50,77,121,150,180,212, , ,366,414,471 13,51,77,121,150,180,212,257,311,366,414,471
	3.6.	Telemetric devices	13.51.78.121182.212.258.312471
	3.7.	Data loggers	13, -, 78, -, -, -, -, -, -, 367, -, - 14,52,79,122,150,182, -, 258,312, -, 415,472
1	3.8. COMPL	Cameras	14,52,79,122,150,182, ,258,312, ,415,472 14,52,79,122,150,183,212,258,312,367,415,472
ж.	4.1.	Averagers	-,,,,, 214,,, 418,
	4.2.	Analog	-,52,80,,,184,214,259,,369,,
	4.3.	Digital	,52,80,,152,185,214,259,316,370,419,474
5.	4.4. SPECIE	Hybrid FIC MEASUREMENTS	14,53,81,123,153,185,215,259,316,370,419,475
	5.1.	Temperature	15,53,81,123,153,185,215,259,316,370, ,475
	5.2.	Time	-,53, -,123,, -,216, -,317,371,, -
	5.3. 5.4.	Frequency Pressure	15,, 81,, 153,,,, 371, 420, 15, 53,, 123, 153, 185, 216, 260, 317, 371,, 476
	5.5.	Flow	15, 54, 81, 124, 153, 185, 216, 260, 317, 371, 420, 476
	5.6.	Flow resistance	,,, 124, , , , , , , 476
	5.7. 5.8.	Volume Density	15,54,82,124,,, 260,318,,, 476 ,,,,, 260,318,371,420,
	5.9.	Accelleration	-,54, -, -, -, -, -, -, -, 371, -, -
	5.10.	Displacement	,54,82, , ,186, ,261,318,372,421,477
	5.11.	Electric phenomenons 5.11.1. Electric activity	16,55,82,124, ,186,216,261,319,372,421,477 ,,,,,216,261,319,372,,478
		5.11.1. Electric activity 5.11.2. Impedance	16,, -, 125,, 186,, 261,, 372,,
	5.12.	Gas concentration	16,55,82,125,154, - ,216,262, - ,372,421,478
	5.13.	Hydrogen ion concentration Radiation	16,,,,,,,,, 421, 17,55,82,126,154,187,216,262,319,372,421,478
	5.14.	5.14.1. Visible light	17,55,83,126,154,187, — ,262,319,372,422,479
		5.14.2. Ultraviolet	18, -, 85, -, -, -, -, 262, 322, 374, 423, -
		5.14.3. Infrared	-,56,85,126, -,188,217, -,323,374,423,479
		5.14.4. Radiowaves 5.14.5. Roentgen radiation	-, -, 86, -, -, -, 217, -, 324,375, -, -, -, 57, -, -, -, 217,262,324,375, -, 479
		5.14.6. α , β and γ radiation	18, 57, 86, 126, 154, 188, 218, 262, 324, 375, 423, 480
		5.14.7. Neutrons	19,58,87, - , - , 220,265, - ,377,425, -
		5.14.8. Cosmic radiation 5.14.9. Sound	20, -, -, -, -, -, -, -, -, -, -, -, -, -,
6.	SPECIA	ALIZED INSTRUMENTATION	20, 58, 87, 127, 155, 190, 220, 266, 326, 378, 426, 483
	6.1.	Metabolism	23,, 89, 129, 157, 191,,, 381, 429, 485
	6.2.	Thermoregulation Digestive tract	23,59,89,129,157, -, -, -, -, -, -, -, -, -, -, -, -, -,
	6.3. 6.4.	Liver and bile ducts	-,59, -,130, -, -, -, -, 330, -,431, -
	6.5.	Blood	-,59, -,130, -, -, -, -, 330, -,431, - 24,59,89,130,158,192,223,270,330,382,431,487
	6.6.	Lymphatic system	-,60,-,-,-,-,-,-,-,383,-,- 24,60,90,131,158,192,224,271,332,383,432,488
	6.7. 6.8.	Circulation Respiration	26, 61, 93, 132, 161, 193, 227, 274, 334, 386, 434, 493
	6.9.	Reproductive system	-,62,94,133,161,194,228,277,335,-,435,493
	6.10.	Urinary tract	26, 62, 94, 133, 161, 194, 229, 277, 336, 386, 435, 495
	6.11. 6.12.	Nervous system Receptors	26,63,97,133,162,195,229,278,336,386,435,496 27,63,97,135,163,195,230,279,337,388,436,497
	6.12.	Locomotor apparatus	29, 64, 98, 135, 164, 196, 231, 281, 338, 389, 438, 499
	6.14.	Skin	98.136. $198.$ $284.$ $391.440.$ $-$
	6.15.	Aerospace medicine	30,65, -, -, 165, -, 233,284,340, -, 440,501

6.16. Work and sport 6.17. Radiology 6.18. Anesthesia 6.19. Monitoring 7. SURGICAL INSTRUMENTS

8. NEW INSTRUMENTS

9. SHORT NOTES

30, --, --, --, --, --, 233, 285, 341, 391, 440, 501 30, 65, 98, 136, 165, 198, 233, 285, 341, 391, 441, 501 32, --, - ,137,165,199,235,289,343,392,444,506 --,66,100,138,165,199,235,289,344,393,444,506 32,66,100,138,166,199,235,289,345,393,445,507 34, -,100, -, -, -, -, 290, -, 394, 447, 508

The copyright of the abstracts, titles and indexes included in this issue is the property of the Excerpta Medica Foundation

No part of this publication may be reproduced in any form by print, photoprint, microfilm or any other means, without written permission from the publisher.